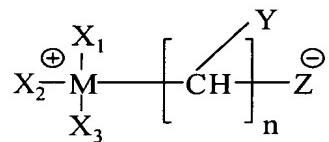


ABSTRACT

The present invention provides an aqueous composition useful for polishing silica and silicon nitride on a semiconductor wafer comprising by weight percent 0.01 to 5 zwitterionic compound, 0.01 to 5 carboxylic acid polymer, 0.02 to 6 abrasive, 0 to 5 cationic compound and balance water, wherein the zwitterionic compound has the following structure:



in which n is an integer, Y comprises hydrogen or an alkyl group, Z comprises carboxyl, sulfate or oxygen, M comprises nitrogen, phosphorus or a sulfur atom, and X₁, X₂ and X₃ independently comprise substituents selected from the group comprising, hydrogen, an alkyl group and an aryl group.